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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,942	11/26/2003	Hibiki Saeki	SIW-074	9424

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LAHIVE & COCKFIELD, LLP.
28 STATE STREET
BOSTON, MA 02109

EXAMINER

NGUYEN, CUONG H

ART UNIT PAPER NUMBER

3661

DATE MAILED: 11/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/723,942

Applicant(s)

SAEKI ET AL.

Examiner

CUONG H. NGUYEN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. This Office Action is the answer to the communication received on 11/26/2003.

2. Claims 1-2 are pending in this application.

Priority

3. Acknowledgment is made of applicants' claim for foreign priority based on JPO 2002-347148, 11/29/2002.

Claim Objections

4. Claim 1 is unclear for repeating "A control device ... comprising" in line 1, and in line 8.

Claim 2 is unclear for repeating "A control apparatus ... comprising" in line 1, and in line 9.

Claim 2 is unclear when claiming that "j. in the case where said **chargeable power is greater** than said regenerative electric power, and said **chargeable power is less** than said regenerative electric power ...".

Appropriate corrections are required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. Independent claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. (US Pat. 6,458,478), in view of Yamaguchi et al. (US Pat. 6,480,767 B2).

A. As for independent claim 2: Wang et al. teach a system for electric-powered vehicle using a fuel cell (see Wang et al., the abstract), comprising:

- a. a propulsion motor capable of driving a vehicle (see Wang et al., 1:4-9);
- b. a fuel cell which generates electric power by supplying a reactant gas to give an electrochemical reaction (see Wang et al., claim 6);
- c. a capacitor which stores generated energy of said fuel cell and performs transfer of electrical energy with said propulsion motor (see Wang et al., Fig.1 - ref. 101, and claim 3 obviously suggests a stored energy of a fuel cell (a capacitor is a device to store electrical energy) and transferring of electrical energy when disclosing charging efficiency and discharging efficiency);
- d. a reactant gas supply device which supplies said reactant gas to said fuel cell (see Wang et al., Fig.1 shows a schematic diagram with 2 water-gas shift reactors); and

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e. an output control device which controls an output current of said fuel cell (see Wang et al., Fig.1 ref.10) - a thermoelectric reformer allows quick response to transient loads);

f. a device to detects a pressure of said reactant gas (see Wang et al., claim 10);

Wang et al., do not disclose that:

g. a device to calculates an electric power which can be generated by regenerative operation; however, Yamaguchi et al. obviously suggest that device (see Yamaguchi et al., 5:54-65);

h. a device which calculates a chargeable power which can be charged to capacitor; however, Yamaguchi et al. obviously suggest that device (see Yamaguchi et al., 6:33-42); and

i. in case where a **chargeable power is less than a regenerative electric power** in a gas pressure environment, said reactant gas supply device stops supply of said reactant gas to the oxygen electrode of said fuel cell, and said output control device restricts the value of the output current of said fuel cell to substantially zero, and

As best understood, the examiner presumes this following condition does not happen since there is a conflict when using the word "and" in this limitation (2 opposite physical conditions can not happen simultaneously):

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j. in the case where said **chargeable power is greater** than said regenerative electric power, **and said chargeable power is less** than said regenerative electric power and the pressure of said reactant gas at the fuel electrode of said fuel cell is greater than a predetermined pressure, said output control device cancels the restriction on the output current of said fuel cell.

The limitation in i. is well-known in electrical field because a chargeable power is compared to a threshold in the existence of a gas pressure (a regenerative electric power which is a predetermined number) to control a flow of output current (allowing a forward or reverse electron direction from the different of voltages between 2 points), for this condition, only having a flow of current toward a fuel cell for charging).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Wang et al. to suggest a regenerative power calculating device, a chargeable power calculating device, and the conditions of output currents according to a relationship of chargeable power and regenerative power as recommended by Yamaguchi et al. for the benefits of implementing a better controllable and chargeable fuel cell.

B. As for independent claim 1:

Because claim 2 covers all limitations of claim 1, similar rationales and references set forth are also applied for 35 USC

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103(a) rejection (claim 1 doesn't take a gas pressure into account).

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CUONG H. NGUYEN whose telephone number is 703-305-4553. The examiner can normally be reached on 7am - 3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, THOMAS G. BLACK can be reached on 703-305-8233. The fax phone number for the organization where this application is assigned is 703-305-7687. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Cuong H. Nguyen

CUAN
CUONG H. NGUYEN
Primary Examiner
Art Unit 3661